CDM
125 South Wacker Drive, Suite 600
Chicago, Illinois 60606
tel: 312 346-5000
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April 21, 2004

Mr. Thomas Williams
Illinois Environmental Protection Agency
12 Gunia Drive
LaSalle, IL 61301

Subject: 2010300074 - Winnebago County
Southeast Rockford Groundwater Contamination Superfund Site
Source Area 4 Field Study Technical Memorandum
Rockford, Winnebago County, Illinois
Superfund/Technical

Dear Mr. Williams:

Camp Dresser & McKee is pleased to submit the Source Area 4 Remedial Design Technical Memorandum for the Southeast Rockford Groundwater Contamination Superfund Site, located in Rockford, Winnebago County, Illinois.

If you have any questions or comments, please contact me at (312) 251-8337.

Sincerely,

John C. Grabs, P.G.
Project Manager
Camp Dresser & McKee Inc.

cc: Terry Ayers, Illinois EPA
Russ Hart, USEPA Region 5
File, Illinois EPA BOL

CDM

# Memorandum

*To:* *Mr. Thomas Williams, Illinois EPA*

*From:* *Mr. John Grabs*

*Date:* *April 21, 2004*

*Subject:* *Southeast Rockford Groundwater Contamination Superfund Site Source Area 4 Field Study Technical Memorandum*

This memorandum was prepared at the request of the Illinois Environmental Protection Agency (Illinois EPA) project manager (PM) to describe significant contamination encountered during pre-design field studies performed at Source Area 4 (Area 4) on March 3 and 4, 2004. The purpose of the study was to collect soil and groundwater samples from Area 4 for use in preparation of the Area 4 remedial design (RD). The Area 4 RD is being prepared to meet the requirements of the Operable Unit (OU) 3 Record of Decision (ROD).

The results of the field studies revealed significant and unexpected contamination below and immediately adjacent to the southern portion of the former Swebco building. Although the OU3 ROD identified the potential need for partial demolition of the building, the OU3 ROD was prepared when the building was unoccupied. Currently, the building is occupied by a business, and partial demolition of the building will cause the business undue hardship.

Although some contamination was assumed to exist below the building, the extensive contamination below and adjacent to the building was not expected based on the results of previous work performed at Area 4. Because of its location in a structurally sensitive location below the building, this contamination cannot be addressed by the remedy selected for Area 4 (excavation and low-temperature thermal desorption [LTTD]). In addition, because the contamination is so extensive, it appears to be the primary source material at Area 4, and will need to be addressed to prevent recontamination of Area 4 following excavation and treatment via LTTD.

This memorandum was prepared to present the results of the unexpected contamination below the building. The results for other pre-design activities, will be presented during the 30 percent presentation.

**Field Study Activities**

Except as noted, all pre-design field study activities including sampling and analysis were conducted in accordance with the approved CDM Southeast Rockford Groundwater Contamination Superfund Site Source Area 4 Pre-Design Sampling and Analysis Plan (SAP), and CDM Quality Assurance Project Plan (QAPP) Addendum For the Indoor Air Sampling (IAS) Study and Source Area 4 Pre-Design Field Study at Southeast Rockford Groundwater Contamination Superfund Site, Rockford, IL. Both documents are dated January 30, 2004.

Area 4 field study activities were proposed to consist of 5 soil boring locations inside the former Swebco building and 3 groundwater boring locations along the western side of the parking lot to the south of the building. Proposed boring locations are shown on Figure No. 4-1 of the SAP (included as **Attachment A**). All deviations from the SAP were discussed with the Illinois EPA PM prior to making any field changes. Field changes were documented in the field notes, and are described in this memorandum.

CDM installed soil borings GP-301 through GP-305 using a skid-steer Geoprobe rig on March 3, 2004 at the locations shown in **Figure 1**. Subsurface soils were collected in disposable 1.5-inch diameter, 4-foot long acetate liners using a Geoprobe dual tube sampling apparatus. The liners were cut open and the subsurface lithology and other observations, such as odors or free product, were logged on the soil boring log. Soil boring logs are included as **Attachment B**. Soil collected in each 4-foot liner was screened using a photo ionization detector (PID) and the reading was also noted on the soil boring log. If an elevated reading was detected, a Sudan IV dye test was performed on the soil to determine the presence of free product.

Soil boring GP-301 was advanced inside the loading bay located on the south end of the building. Free product, as indicated by Sudan IV dye test, was observed almost continuously in 1-inch to 12-inch layers from approximately 12 feet below ground surface (bgs) until groundwater was encountered at approximately 32 feet bgs. A soil sample containing free product, GP-301D, was collected from 14 to 16 feet bgs and submitted for analysis. Where free product layers were present, the normally yellowish brown subsurface sands were stained grey.

GP-302 and GP-303 were advanced inside the building to the north and northwest of GP-301 respectively. No elevated PID readings or evidence of contamination was observed during the advancement of GP-302 or GP-303. Soil samples GP-302H and GP-303H were collected at 28 to 30 feet bgs. A matrix spike/matrix spike duplicate (MS/MSD) sample was also collected from GP-302 at 28-30 feet bgs. A soil boring location was originally proposed to the west of GP-302, however due to restricted access to the proposed location, the soil boring could not be installed. Another soil boring was also proposed to the east of GP-303; however, the soil boring was not installed as the extent of contamination to the north of the source was sufficiently defined by GP-302 and GP-303.

After discussion with the Illinois EPA PM, it was determined that two soil borings should be installed to define the extent of free product south of GP-301. GP-304 was installed 42 feet south of GP-301 and GP-305 was installed 70 feet southwest of GP-301. No elevated PID readings or evidence of contamination was observed during advancement of GP-304 or GP-305. Soil samples GP-304H and GP-305H were collected at 28 to 30 feet bgs. A duplicate soil sample GP-304H(D) was also collected from GP-304 at 28 to 30 feet bgs. A rinsate blank was taken after GP-305 was completed and sampling equipment was decontaminated.

CDM submitted a total of 5 soil samples, 1 MS/MSD sample, 1 duplicate sample, and 1 rinsate blank using protocols specified in the SAP. Samples were analyzed for volatile organic compounds (VOCs) by the USEPA CLP.

After discussion with the Illinois EPA PM, one additional soil boring, GP-309, was installed outside the building to identify the extent of contamination to the west of GP-301 on March 4, 2004. GP-309 was advanced within what appears to be a rectangular-shaped former loading dock area. Free product or staining was observed continuously from approximately 6 inches bgs until termination of the soil boring at 16 feet bgs. It is assumed that contamination in GP-309 extends down to the water table, similar to that observed in GP-301. No soil sample was collected from GP-309.

Groundwater sample locations GW-306 through GW-308 were installed using a skid-steer Geoprobe on March 4, 2004. Groundwater sample locations were installed and groundwater samples were collected in accordance with the SAP. Discussion of the groundwater sample results is not included as part of this technical memorandum.

The locations of the borings were measured using a measuring wheel at the end of the field study, and noted on the field boring logs. A figure of field study boring location and historical soil boring locations is attached.

**Contaminant Observations and Analytical Results**

Analytical results for soil sample GP-301D indicate that high concentrations of chlorinated solvents and lower concentrations of petroleum hydrocarbons are present in the free product observed at GP-301. Contaminants detected above TACO Tier 1 soil migration to groundwater SROs include 1,1,1-trichloroethane (TCA), 1,1,2-trichloroethane, 1,1 dichloroethene (11DCE), carbon tetrachloride, tetrachloroethene and trichloroethene. In addition, using a common "rule of thumb" for comparing total concentrations to toxicity characteristic leaching procedure (TCLP) concentrations, the total concentration of 11DCE in sample GP-301D indicates that the material is likely hazardous per 40 CFR 261.

Previous investigation results for SB04-01 and SB04-202 indicated that TCA and methylene chloride were contaminants within soils containing free product. However analytical results for SB04-01 and SB04-202 suffered elevated detection limits; consequently other contaminants

detected in sample GP-301D may be present at similar or higher concentrations in other soils with observed free product. Free product has been observed in soil borings GP-301 (12 to 32 feet), GP-309 (0.5 to 32 feet), SB04-01 (30 to 37 feet), SB04-05 (31 to 37 feet), SB04-06 (30 to 37 feet) and SB04-202 (27 to 37 feet).

TCA was the only volatile organic compound detected in soil samples GP-302H, GP-303H, GP-304H and GP-305H. Soil analytical results are summarized on **Table 1** and **Figure 2**.

**Data Interpretation**

Contamination in the form of free product was observed starting at 6 inches bgs at GP-309, which indicates that contamination at this location is likely due to surface deposition of waste. The area surrounding GP-309 is likely the primary source of free product. Free product appears to have migrated both vertically and laterally through the unsaturated sands as observed under the Swebco building at GP-301. It is anticipated that a significant portion of the primary source will remain after source activities are performed due to the location of the former Swebco building. Consequently, an alternative remedial strategy is required to address residual free product in the southern loading bay area.

To the west of the primary source area, free product has migrated laterally upon contact with the groundwater surface as observed in SB04-01, SB04-05, SB04-06 and SB04-202, causing a secondary source of free product. The accumulation and lateral migration of free product along the groundwater surface is likely due to interfacial tension between the free product and groundwater, and groundwater flow direction. Secondary source free product in this area is to be addressed by excavation and treatment via LTTD.

**Data Gaps**

The pre-design field study has identified the extent of product to the north and south of the primary and secondary source areas. However, additional sampling is warranted to delineate the extent of free product to the east of GP-301.

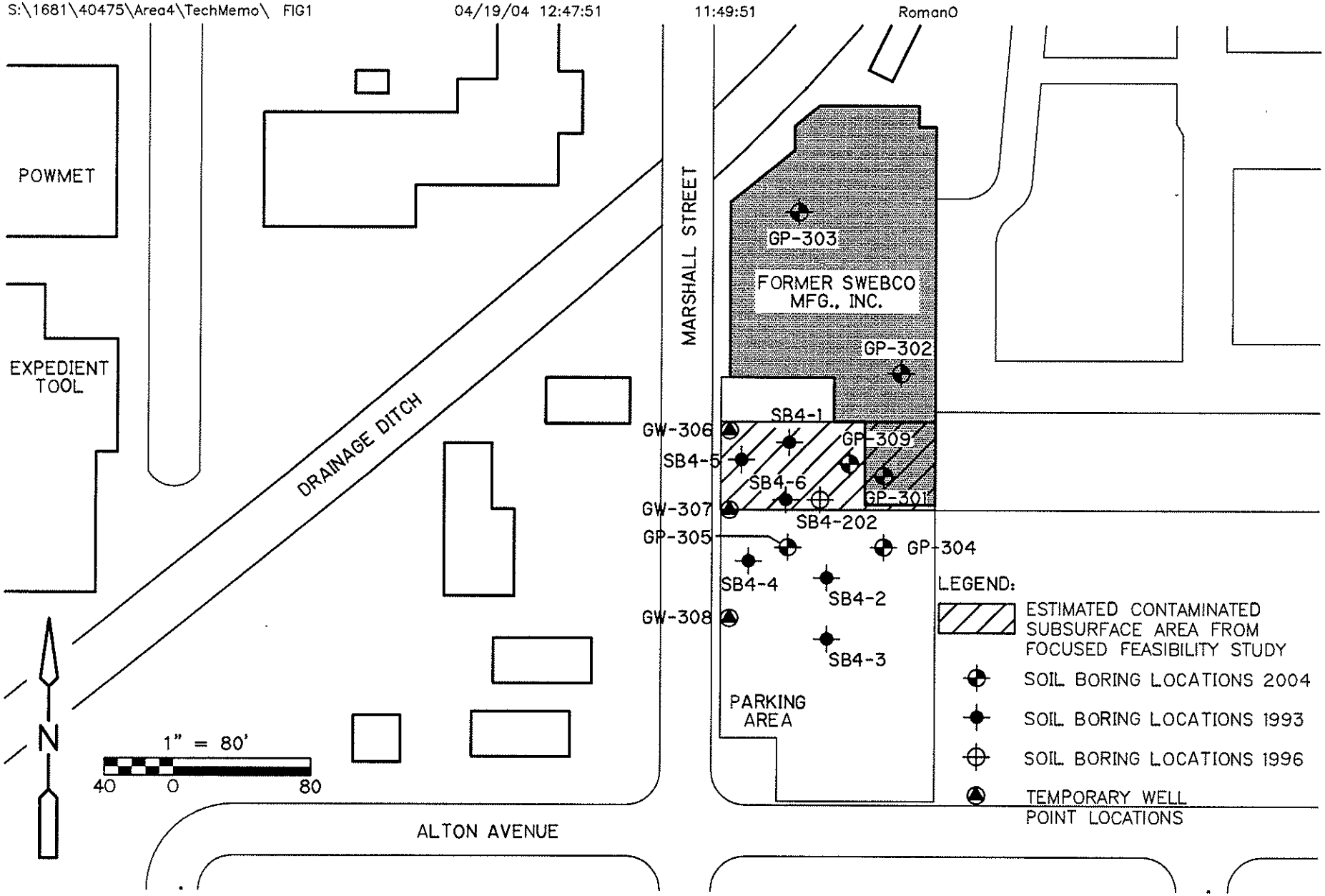
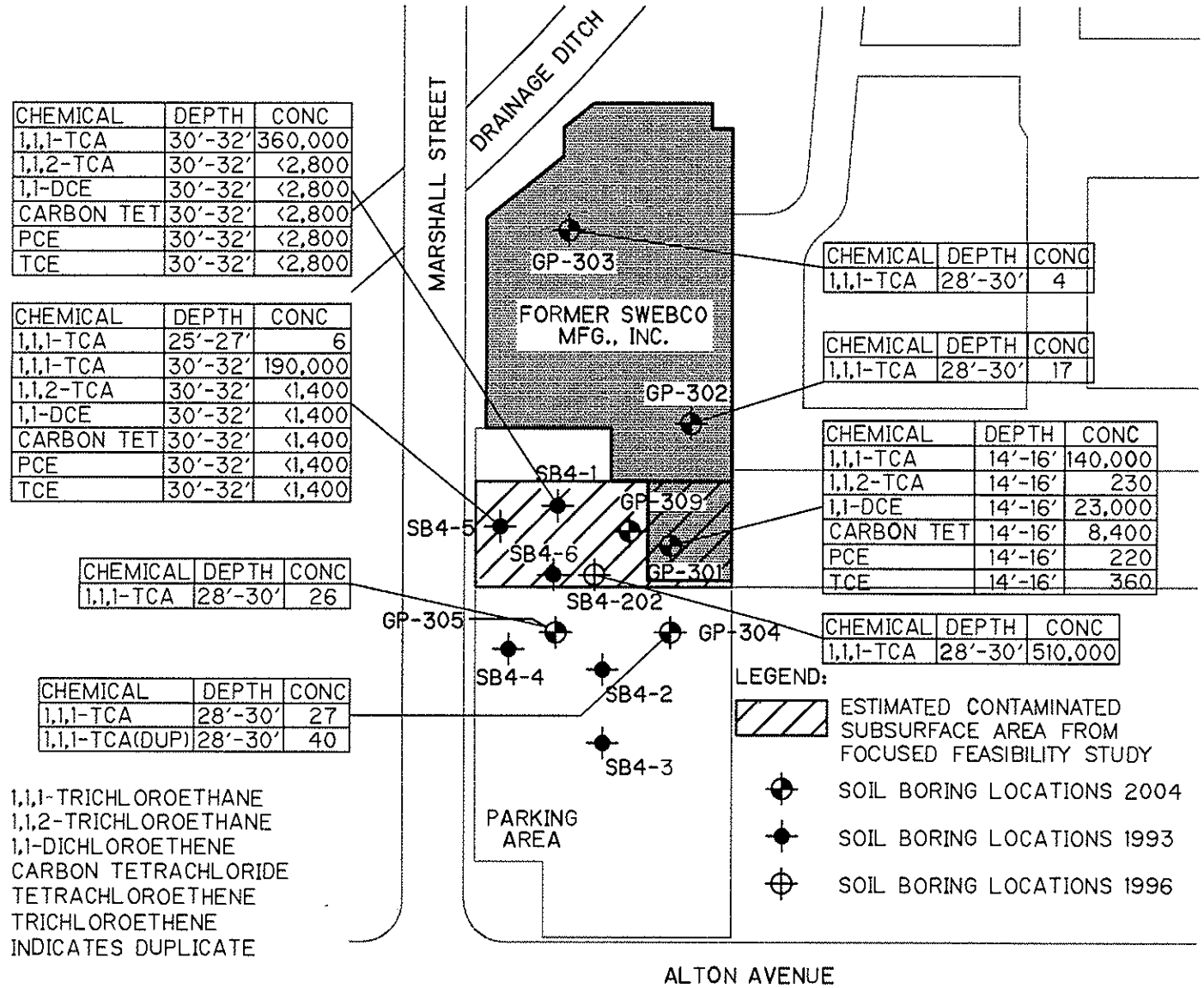



Figure 1
SOUTHEAST ROCKFORD AREA 4 REMEDIAL DESIGN
AREA 4 PRE-DESIGN FIELD STUDY SAMPLE LOCATIONS

CDM

S:\1681\40475\Area4\TechMemo\ FIG2 04/19/04 12:59:39 13:27:06 Roman0




| CHEMICAL | DEPTH | CONC |
|---|---|---|
| 1,1,1-TCA | 30'-32' | 360,000 |
| 1,1,2-TCA | 30'-32' | <2,800 |
| 1,1-DCE | 30'-32' | <2,800 |
| CARBON TET | 30'-32' | <2,800 |
| PCE | 30'-32' | <2,800 |
| TCE | 30'-32' | <2,800 |

| CHEMICAL | DEPTH | CONC |
|---|---|---|
| 1,1,1-TCA | 25'-27' | 6 |
| 1,1,1-TCA | 30'-32' | 190,000 |
| 1,1,2-TCA | 30'-32' | <1,400 |
| 1,1-DCE | 30'-32' | <1,400 |
| CARBON TET | 30'-32' | <1,400 |
| PCE | 30'-32' | <1,400 |
| TCE | 30'-32' | <1,400 |

| CHEMICAL | DEPTH | CONC |
|---|---|---|
| 1,1,1-TCA | 28'-30' | 26 |

| CHEMICAL | DEPTH | CONC |
|---|---|---|
| 1,1,1-TCA | 28'-30' | 27 |
| 1,1,1-TCA(DUP) | 28'-30' | 40 |

| CHEMICAL | DEPTH | CONC |
|---|---|---|
| 1,1,1-TCA | 28'-30' | 4 |

| CHEMICAL | DEPTH | CONC |
|---|---|---|
| 1,1,1-TCA | 28'-30' | 17 |

| CHEMICAL | DEPTH | CONC |
|---|---|---|
| 1,1,1-TCA | 14'-16' | 140,000 |
| 1,1,2-TCA | 14'-16' | 230 |
| 1,1-DCE | 14'-16' | 23,000 |
| CARBON TET | 14'-16' | 8,400 |
| PCE | 14'-16' | 220 |
| TCE | 14'-16' | 360 |

| CHEMICAL | DEPTH | CONC |
|---|---|---|
| 1,1,1-TCA | 28'-30' | 510,000 |

## LEGEND

| | |
|---|---|
| 1,1,1-TCA | 1,1,1-TRICHLOROETHANE |
| 1,1,2-TCA | 1,1,2-TRICHLOROETHANE |
| 1,1-DCE | 1,1-DICHLOROETHENE |
| CARBON TET | CARBON TETRACHLORIDE |
| PCE | TETRACHLOROETHENE |
| TCE | TRICHLOROETHENE |
| (DUP) | INDICATES DUPLICATE |

## NOTES:

1. CONCENTRATIONS ARE IN ug/Kg
2. RESULTS WHERE DETECTION LIMITS ARE ABOVE TACO MIGRATION TO GROUNDWATER LIMITS ARE SHOWN AS <XXXXX

1" = 80'

40 0 80

Figure 2

SOUTHEAST ROCKFORD AREA 4 REMEDIAL DESIGN
AREA 4 PRE-DESIGN FIELD STUDY SAMPLE LOCATIONS

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# Table 1
## Soil Analytical Results Summary
## SE Rockford - Area 4

| Sample Number : | Record of Decision | Migration to Groundwater | | E2D29 | | E2D30 | | E2D31 | | E2D32 | | E2D33 | | E2D34 | | EBGR3 | | EXR35 | | EXR36 | | EXR42 | | EXR36 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sampling Location : | Remediation Goal | Class I | Class II | GP-301D | | GP-302H | | GP-303H | | GP-304H | | GP-304H(D) | | GP-305H | | SB4-202-8 | | SB4-1D | | SB4-1F | | SB4-5E | | SB4-1F | |
| Matrix : | | | | Soil | | Soil | | Soil | | Soil | | Soil | | Soil | | Soil | | Soil | | Soil | | Soil | | Soil | |
| Units : | ug/Kg | ug/Kg | ug/Kg | ug/Kg | | ug/Kg | | ug/Kg | | ug/Kg | | ug/Kg | | ug/Kg | | ug/Kg | | ug/Kg | | ug/Kg | | ug/Kg | | ug/Kg | |
| Date Sampled : | | | | 3/3/2004 | | 3/3/2004 | | 3/3/2004 | | 3/3/2004 | | 3/3/2004 | | 3/3/2004 | | 6/27/1996 | | 6/28/1993 | | 6/28/1993 | | 6/29/1993 | | 6/29/1993 | |
| Sample Depth: | | | | 14' to 16' | | 28' to 30' | | 28' to 30' | | 28' to 30' | | 28' to 30' | | 28' to 30' | | 28' to 30' | | 20' to 22' | | 30' to 32' | | 25' to 27' | | 30' to 32' | |
| %Moisture : | | | | 15 | | 4 | | 4 | | 2 | | 2 | | 4 | | | | | | | | | | | |
| pH : | | | | 7.0 | | 7.0 | | 7.0 | | 7.0 | | 7.0 | | 7.0 | | | | | | | | | | | |
| Dilution Factor : | | | | 1.0 | | 1.0 | | 1.0 | | 1.0 | | 1.0 | | 1.0 | | | | | | | | | | | |
| **Volatile Compounds** | | | | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag |
| 1,1,1-TRICHLOROETHANE | 9,118 | 2000 | 9600 | **140000** | | 17 | | 4 | J | 27 | | 40 | | 26 | | **510000** | | <11 | U | **360000** | | 6 | J | **190000** | |
| 1,1,2-TRICHLOROETHANE | | 20 | 300 | **230** | J | <11 | U | <14 | U | <14 | U | <12 | U | <11 | U | ND | U | <11 | U | **<2800** | U | ND | U | **<14000** | U |
| 1,1-DICHLOROETHANE | | 23000 | 110000 | 1300 | J | <11 | U | <14 | U | <14 | U | <12 | U | <11 | U | ND | U | <11 | U | <2800 | U | ND | U | <14000 | U |
| 1,1-DICHLOROETHENE | 60 | 60 | 300 | **23000** | J | <11 | U | <14 | U | <14 | U | <12 | U | <11 | U | ND | U | <11 | U | **<2800** | U | ND | U | **<14000** | U |
| 2-BUTANONE | | | | 11 | J | <11 | UJ | <14 | UJ | <14 | UJ | <12 | UJ | <11 | UJ | ND | U | <11 | U | <2800 | U | ND | U | <14000 | U |
| 4-METHYL-2-PENTANONE | | | | 570 | J | <11 | U | <14 | U | <14 | U | <12 | U | <11 | U | ND | U | <11 | U | <2800 | U | ND | U | <14000 | U |
| ACETONE | | 16000 | 16000 | 20 | J | <11 | UJ | <14 | UJ | <14 | UJ | <12 | UJ | <11 | UJ | ND | U | <11 | UB | <2800 | U | 9 | J | <14000 | U |
| CARBON TETRACHLORIDE | | 70 | 330 | **8400** | J | <11 | U | <14 | U | <14 | U | <12 | U | <11 | U | ND | U | <11 | U | **<2800** | U | ND | U | **<14000** | U |
| CHLOROFORM | | 600 | 2900 | 3 | J | <11 | U | <14 | U | <14 | U | <12 | U | <11 | U | ND | U | <11 | U | **<2800** | U | ND | U | **<14000** | U |
| CIS-1,2-DICHLOROETHENE | | 400 | 1100 | 180 | J | <11 | U | <14 | U | <14 | U | <12 | U | <11 | U | ND | U | <11 | U | **<2800** | U | ND | U | **<14000** | U |
| ETHYLBENZENE | | 13000 | 19000 | 170 | J | <11 | U | <14 | U | <14 | U | <12 | U | <11 | U | ND | U | <11 | U | <2800 | U | ND | U | **<14000** | U |
| METHYLCYCLOHEXANE | | | | 13 | J | <11 | U | <14 | U | <14 | U | <12 | U | <11 | U | ND | U | <11 | U | <2800 | U | ND | U | <14000 | U |
| METHYLENE CHLORIDE | | 20 | 200 | <13 | U | <11 | U | <14 | U | <14 | U | <12 | U | <11 | U | **27000** | U | <11 | UB | **<2800** | U | ND | UB | **<14000** | U |
| STYRENE | | 4000 | 18000 | 31 | J | <11 | U | <14 | U | <14 | U | <12 | U | <11 | U | ND | U | <11 | U | <2800 | U | ND | U | **<14000** | U |
| TETRACHLOROETHENE | | 60 | 300 | **220** | J | <11 | U | <14 | U | <14 | U | <12 | U | <11 | U | ND | U | <11 | U | **<2800** | U | ND | U | **<14000** | U |
| TOLUENE | | 12000 | 29000 | 37 | J | <11 | U | <14 | U | <14 | U | <12 | U | <11 | U | ND | U | <11 | U | <2800 | U | 12 | | **<14000** | U |
| TRICHLOROETHENE | 60 | 60 | 300 | **360** | J | <11 | U | <14 | U | <14 | U | <12 | U | <11 | U | ND | U | <11 | U | **<2800** | U | ND | U | **<14000** | U |
| XYLENES (TOTAL) | | 150000 | 150000 | 2500 | J | <11 | U | <14 | U | <14 | U | <12 | U | <11 | U | ND | U | <11 | U | <2800 | U | ND | U | <14000 | U |

Note need to look at old data for dilutions, detection limits

**Bold** indicates Exceeds Migration to groundwater TACO Soil Remedial Objectives

Attachment A

Proposed Boring Locations

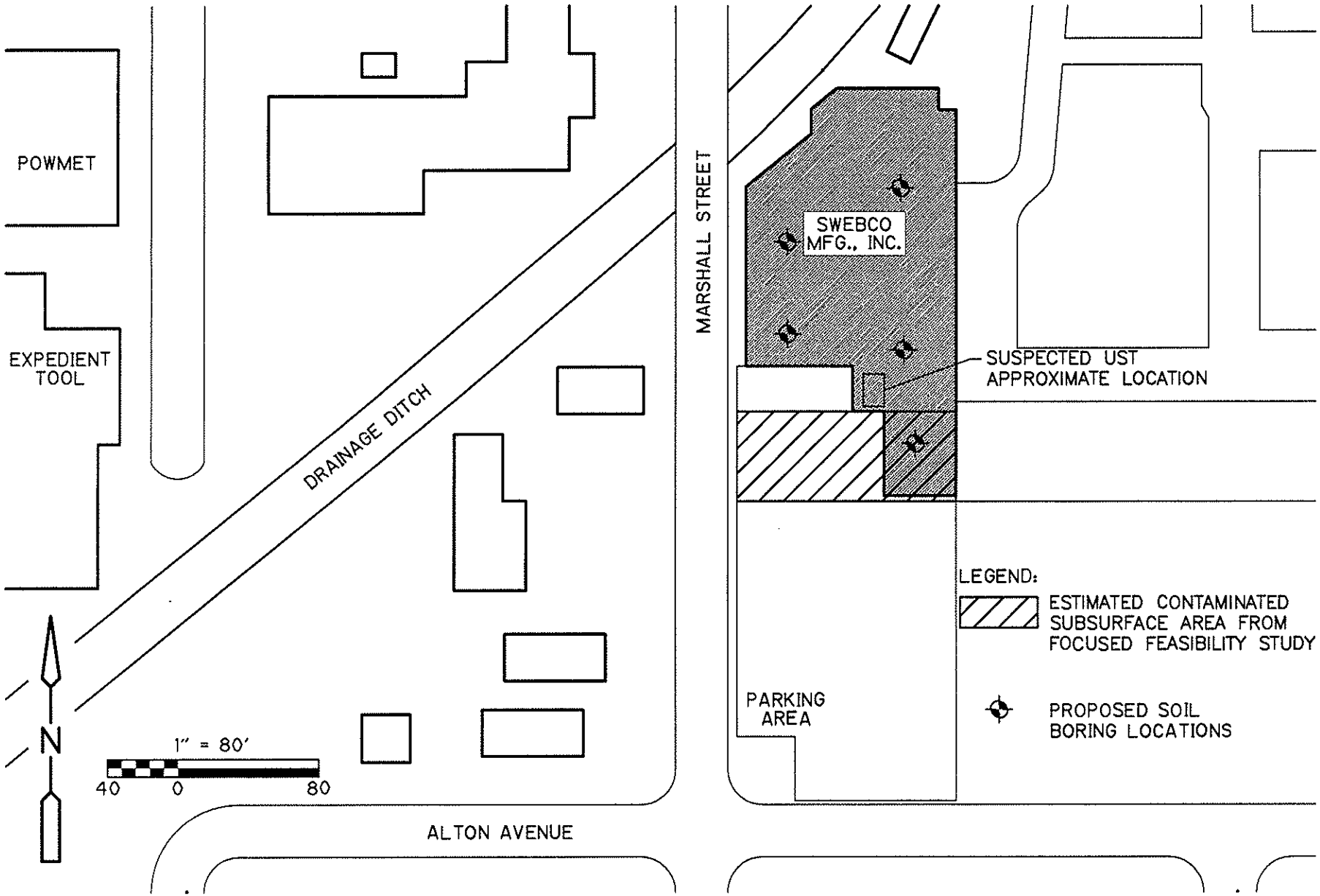


Figure No. 4-1
SOUTHEAST ROCKFORD AREA 4 REMEDIAL DESIGN
PROPOSED SOIL BORING LOCATIONS

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Attachment B

Soil Boring Logs

CAMP DRESSER & McKEE
**CDM**
125 South Wacker Drive, Suite 600
Chicago, Illinois 60606



# BOREHOLE LOG
## GP-301

**Client:** IEPA
**Project Name:** Area 4
**Project Location:** 2630 Marshall Street, Rockford IL
**Project Number:** 1681-40475

**Drilling Contractor:** Soil Essentials
**Surface Elevation (ft.):**
**Drilling Method/Rig:** Direct Push/Geoprobe
**Total Depth (ft.):** 36
**Drillers:** Corey Johnson
**Depth to Initial Water Level (ft. BGS):** 32
**Drilling Date: Start:** 3/3/04 **End:** 3/3/04
**Abandonment Method:** Tremied Bentonite Slurry
**Borehole Coordinates:**
**Field Screening Instrument:** PID
N E
**Logged By:** David de Courcy-Bower

| Sample Type | Sample Number | Sample Recovery (Inches) | Elev. Depth (ft.) | Field Instrument Reading (ppm) | Blows per 6 inches | Graphic Log | Stratum Designation | Material Description |
|---|---|---|---|---|---|---|---|---|
| GP | 1 | 48/48 | 0 | 0.0 | | | CONC | 5" CONCRETE |
| | | | | | | | SM | SANDY SILT - reddish-black, dry to moist, very soft, piece of metal @ 1' |
| GP | 2 | 48/42 | 5 | 0.0 | | | SP | SAND - orangish brown, fine to medium grained, moist, loose |
| GP | 3 | 48/42 | 10 | 1.2 | | | | |
| GP | 4 | 48/48 | 15 | 20.8 | | | SP | SAND - yellowish brown, fine to medium grained, moist to wet, loose, hydrocarbon odor, free product in layers, layers containing product are stained grey, layers are between 1" and 12" in thickness |
| GP | 5 | 48/48 | | 16.2 | | | | |

### EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
OTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
OTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

### REMARKS

Soil sample GP-301D sampled from 14-16 feet below ground surface - submitted to laboratory for analysis of VOCs

**Reviewed by:** **Date:**

CAMP DRESSER & McKEE
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125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

# BOREHOLE LOG
## GP-301

**Client:** IEPA
**Project Name:** Area 4
**Project Location:** 2630 Marshall Street, Rockford IL
**Project Number:** 1681-40475

| Sample Type | Sample Number | Sample Recovery (Inches) | Elev. Depth (ft.) | Field Instrument Reading (ppm) | Blows per 6 Inches | Graphic Log | Stratum Designation | Material Description |
|---|---|---|---|---|---|---|---|---|
| GP | 6 | 48/48 | 20 | 8.2 | | | SP | |
| GP | 7 | 48/48 | 25 | 16.4 | | | | |
| GP | 8 | 48/48 | 30 | 19.7 | | | | |
| GP | 9 | 48/48 | 35 | 1.2 | | | SP | SAND - yellowish brown, fine to coarse grained, wet, loose, slight hydrocarbon odor |
| | | | 40 | | | | | End of boring @ 36 feet below ground surface |
| | | | 45 | | | | | |
| | | | 50 | | | | | |
| | | | 55 | | | | | |

CAMP DRESSER & McKEE
CDM
125 South Wacker Drive, Suite 600
Chicago, Illinois 60606



# BOREHOLE LOG
## GP-302

**Client:** IEPA
**Project Name:** Area 4
**Project Location:** 2630 Marshall Street, Rockford IL
**Project Number:** 1681-40475

**Drilling Contractor:** Soil Essentials
**Surface Elevation (ft.):**
**Drilling Method/Rig:** Direct Push/Geoprobe
**Total Depth (ft.):** 36
**Drillers:** Corey Johnson
**Depth to Initial Water Level (ft. BGS):** 32
**Drilling Date: Start:** 3/3/04 **End:** 3/3/04
**Abandonment Method:** Tremied Bentonite Slurry
**Borehole Coordinates:**
**Field Screening Instrument:** PID
N E
**Logged By:** David de Courcy-Bower

| Sample Type | Sample Number | Sample Recovery (Inches) | Elev. Depth (ft.) | Field Instrument Reading (ppm) | Blows per 6 Inches | Graphic Log | Stratum Designation | Material Description |
|---|---|---|---|---|---|---|---|---|
| GP | 1 | 48/48 | 0 | 0.0 | | | CONC<br>SM | 4" CONCRETE<br>SANDY SILT - reddish brown, dry to moist, very soft |
| GP | 2 | 48/48 | 5 | 0.0 | | | SP | SAND - yellowish brown, fine to medium grained, moist, loose |
| GP | 3 | 48/48 | 10 | 0.0 | | | | |
| GP | 4 | 48/48 | 15 | 0.0 | | | | |
| GP | 5 | 48/42 | | 0.0 | | | | |

### EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

### REMARKS

Soil sample GP-302H taken from 28-30 feet below ground surface - submitted to laboratory for analysis of VOCs

**Reviewed by:** **Date:**

CAMP DRESSER & McKEE
CDM
125 South Wacker Drive, Suite 600
Chicago, Illinois 60606



# BOREHOLE LOG
## GP-302

**Client:** IEPA
**Project Name:** Area 4
**Project Location:** 2630 Marshall Street, Rockford IL
**Project Number:** 1681-40475

| Sample Type | Sample Number | Sample Recovery (Inches) | Elev. Depth (ft.) | Field Instrument Reading (ppm) | Blows per 6 Inches | Graphic Log | Stratum Designation | Material Description |
|---|---|---|---|---|---|---|---|---|
| GP | 6 | 48/42 | 20 | 0.0 | | | SP | |
| GP | 7 | 48/48 | 25 | 0.0 | | | | |
| GP | 8 | 48/42 | 30 | 0.0 | | | | |
| GP | 9 | 48/48 | 35 | 0.0 | | | SP | SAND - yellowish brown, fine to medium grained, wet, loose |
| | | | 40 | | | | | End of boring @ 36 feet below ground surface |
| | | | 45 | | | | | |
| | | | 50 | | | | | |
| | | | 55 | | | | | |

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# BOREHOLE LOG
## GP-303

**Client:** IEPA
**Project Name:** Area 4
**Project Location:** 2630 Marshall Street, Rockford IL
**Project Number:** 1681-40475

**Drilling Contractor:** Soil Essentials
**Surface Elevation (ft.):**
**Drilling Method/Rig:** Direct Push/Geoprobe
**Total Depth (ft.):** 36
**Drillers:** Corey Johnson
**Depth to Initial Water Level (ft. BGS):** 32
**Drilling Date: Start:** 3/3/04 **End:** 3/3/04
**Abandonment Method:** Tremied Bentonite Slurry
**Borehole Coordinates:**
**Field Screening Instrument:** PID
N E
**Logged By:** David de Courcy-Bower

| Sample Type | Sample Number | Sample Recovery (Inches) | Elev. Depth (ft.) | Field Instrument Reading (ppm) | Blows per 6 Inches | Graphic Log | Stratum Designation | Material Description |
|---|---|---|---|---|---|---|---|---|
| GP | 1 | 48/42 | 0 | 0.0 | | | CONC | 5" CONCRETE |
| | | | | | | | FILL | FILL - reddish-black, dry to moist, gravel and sand |
| | | | | | | | SM | SANDY SILT - reddish-black, dry to moist, very soft |
| GP | 2 | 48/42 | 5 | 0.0 | | | SP | SAND - yellowish-brown, fine to medium grained, moist, loose |
| GP | 3 | 48/46 | 10 | 0.0 | | | | |
| GP | 4 | 48/36 | | 0.0 | | | | |
| GP | 5 | 48/48 | 15 | 0.0 | | | | |

### EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

### REMARKS

Soil sample GP-303H taken from 28-30 feet below ground surface - submitted to laboratory for analysis of VOCs

**Reviewed by:** **Date:**

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CDM
125 South Wacker Drive, Suite 600
Chicago, Illinois 60606



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## GP-303

**Client:** IEPA
**Project Name:** Area 4
**Project Location:** 2630 Marshall Street, Rockford IL
**Project Number:** 1681-40475

| Sample Type | Sample Number | Sample Recovery (Inches) | Elev. Depth (ft.) | Field Instrument Reading (ppm) | Blows per 6 inches | Graphic Log | Stratum Designation | Material Description |
|---|---|---|---|---|---|---|---|---|
| GP | 6 | 48/42 | 20 | 0.0 | | | SP | |
| GP | 7 | 48/36 | 25 | 0.0 | | | SP | SAND - yellowish-brown, fine grained, moist, dense |
| GP | 8 | 48/48 | 30 | 0.0 | | | SP | SAND - yellowish-brown, fine to medium grained, moist, loose |
| GP | 9 | 48/48 | 35 | 0.0 | | | SP | SAND - yellowish-brown, fine to medium grained, wet, loose |
| | | | 40 | | | | | End of boring @ 36 feet below ground surface |
| | | | 45 | | | | | |
| | | | 50 | | | | | |
| | | | 55 | | | | | |

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# BOREHOLE LOG
## GP-304

**Client:** IEPA
**Project Name:** Area 4
**Project Location:** 2630 Marshall Street, Rockford IL
**Project Number:** 1681-40475

**Drilling Contractor:** Soil Essentials
**Surface Elevation (ft.):**
**Drilling Method/Rig:** Direct Push/Geoprobe
**Total Depth (ft.):** 36
**Drillers:** Corey Johnson
**Depth to Initial Water Level (ft. BGS):** 32
**Drilling Date: Start:** 3/3/04 **End:** 3/3/04
**Abandonment Method:** Tremied Bentonite Slurry
**Borehole Coordinates:**
**Field Screening Instrument:** PID
N E
**Logged By:** David de Courcy-Bower

| Sample Type | Sample Number | Sample Recovery (Inches) | Elev. Depth (ft.) | Field Instrument Reading (ppm) | Blows per 6 Inches | Graphic Log | Stratum Designation | Material Description |
|---|---|---|---|---|---|---|---|---|
| GP | 1 | 48/42 | 0 | 0.0 | | | ASPH | 1" ASPHALT |
| | | | | | | | SM | SANDY SILT - brownish-yellow, dry to moist, soft to firm |
| GP | 2 | 48/42 | 5 | 0.0 | | | SP | SAND - brownish-yellow, fine to medium grained, dry to moist, loose |
| GP | 3 | 48/46 | 10 | 0.0 | | | | |
| GP | 4 | 48/46 | 15 | 0.0 | | | | |
| GP | 5 | 48/42 | | 0.0 | | | | |

### EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
OTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
OTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

### REMARKS

Soil sample GP-304H taken from 28-30 feet below ground surface - submitted to laboratory for analysis of VOCs

**Reviewed by:** **Date:**

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# BOREHOLE LOG
## GP-304

**Client:** IEPA
**Project Name:** Area 4
**Project Location:** 2630 Marshall Street, Rockford IL
**Project Number:** 1681-40475

| Sample Type | Sample Number | Sample Recovery (Inches) | Elev. Depth (ft.) | Field Instrument Reading (ppm) | Blows per 6 Inches | Graphic Log | Stratum Designation | Material Description |
|---|---|---|---|---|---|---|---|---|
| GP | 6 | 48/48 | 20 | 0.0 | | | SP | |
| GP | 7 | 48/42 | 25 | 0.0 | | | | |
| GP | 8 | 48/46 | 30 | 0.0 | | | | |
| GP | 9 | 48/48 | 35 | 0.0 | | | SP | SAND - brownish-yellow, fine to medium grained, wet, loose |
| | | | 40 | | | | | End of boring @ 36 feet below ground surface |
| | | | 45 | | | | | |
| | | | 50 | | | | | |
| | | | 55 | | | | | |

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# BOREHOLE LOG
## GP-305

**Client:** IEPA
**Project Name:** Area 4
**Project Location:** 2630 Marshall Street, Rockford IL
**Project Number:** 1681-40475

**Drilling Contractor:** Soil Essentials
**Surface Elevation (ft.):**
**Drilling Method/Rig:** Direct Push/Geoprobe
**Total Depth (ft.):** 36
**Drillers:** Corey Johnson
**Depth to Initial Water Level (ft. BGS):** 31
**Drilling Date: Start:** 3/3/04 **End:** 3/3/04
**Abandonment Method:** Tremied Bentonite Slurry
**Borehole Coordinates:**
**Field Screening Instrument:** PID
N E
**Logged By:** David de Courcy-Bower

| Sample Type | Sample Number | Sample Recovery (Inches) | Elev. Depth (ft.) | Field Instrument Reading (ppm) | Blows per 6 inches | Graphic Log | Stratum Designation | Material Description |
|---|---|---|---|---|---|---|---|---|
| GP | 1 | 48/42 | 0 | 0.0 | | | ASPH | 1" ASPHALT |
| | | | | | | | SM | SANDY SILT - reddish-black, dry to moist, soft |
| GP | 2 | 48/42 | 5 | 0.0 | | | SP | SAND - brownish yellow, fine to medium grained, dry to moist, loose |
| GP | 3 | 48/46 | 10 | 0.0 | | | | |
| GP | 4 | 48/48 | 15 | 0.0 | | | | |
| GP | 5 | 48/48 | | 0.0 | | | | |

### EXPLANATION OF ABBREVIATIONS

DRILLING METHDDS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

### REMARKS

Soil sample GP-305H taken from 28-30 feet below ground surface - submitted to laboratory for analysis of VOCs

**Reviewed by:** **Date:**

BL AREA 4 03-04.GPJ CDM_CDRP.GDT 4/19/04

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# BOREHOLE LOG
## GP-305

**Client:** IEPA
**Project Name:** Area 4
**Project Location:** 2630 Marshall Street, Rockford IL
**Project Number:** 1681-40475

| Sample Type | Sample Number | Sample Recovery (Inches) | Elev. Depth (ft.) | Field Instrument Reading (ppm) | Blows per 6 Inches | Graphic Log | Stratum Designation | Material Description |
|---|---|---|---|---|---|---|---|---|
| | | | 20 | | | | SP | |
| GP | 6 | 48/48 | | 0.0 | | | SP | SAND - brownish yellow, fine grained, moist, dense |
| GP | 7 | 48/48 | 25 | 0.0 | | | SP | SAND - brownish yellow, fine to medium grained, moist, loose |
| GP | 8 | 48/48 | 30 | 0.0 | | | SP | SAND - brownish yellow, fine to medium grained, wet, loose |
| GP | 9 | 48/48 | | 0.0 | | | | |
| | | | 35 | | | | | End of boring @ 36 feet below ground surface |
| | | | 40 | | | | | |
| | | | 45 | | | | | |
| | | | 50 | | | | | |
| | | | 55 | | | | | |

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# BOREHOLE LOG
## GP-309

**Client:** IEPA
**Project Name:** Area 4
**Project Location:** 2630 Marshall Street, Rockford IL
**Project Number:** 1681-40475

**Drilling Contractor:** Soil Essentials
**Surface Elevation (ft.):**
**Drilling Method/Rig:** Direct Push/Geoprobe
**Total Depth (ft.):** 16
**Drillers:** Corey Johnson
**Depth to Initial Water Level (ft. BGS):** Not Encountered
**Drilling Date: Start:** 3/4/04 **End:** 3/4/04
**Abandonment Method:** Tremied Bentonite Slurry
**Borehole Coordinates:**
**Field Screening Instrument:** PID
**N** E
**Logged By:** David de Courcy-Bower

| Sample Type | Sample Number | Sample Recovery (Inches) | Elev. Depth (ft.) | Field Instrument Reading (ppm) | Blows per 6 Inches | Graphic Log | Stratum Designation | Material Description |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| GP | | 48/36 | 0 | | | | FILL | FILL - Gravel |
| | | | | | | | SM | SANDY SILT - reddish-black, moist to wet, soft, hydrocarbon odor/free product |
| GP | | 48/48 | 5 | | | | SP | SAND - blackish-yellow, fine to medium grained, moist to wet, loose, hydrocarbon odor/free product |
| GP | | 48/48 | 10 | | | | | |
| GP | | 48/42 | 15 | | | | | |
| | | | | | | | | End of boring @ 16 feet below ground surface. |

### EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

### REMARKS

Soil boring advanced to identify extent of product west of GP-301

**Reviewed by:** **Date:**

BL AREA 4 03-04.GPJ CDM_CORP.GDT 4/19/04